

**PROJECT TITLE: Carbon content of coastal and wetland sediments**

**Project Supervisor: Prof Andy Rees, Plymouth Marine Laboratory**

**Co-Supervisor (if any): Dr Sarah Breimann, Plymouth Marine Laboratory**

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**Project keywords: Carbon, marine sediments, wetlands, 13C isotopes, coastal waters, estuary**

**Proposed start date: Between 3<sup>rd</sup> and 17<sup>th</sup> June 2024**



### **Project description:**

You will work alongside a team of researchers who are investigating human impacts on marine and estuarine wetland systems. Specifically for this project we have collected sediment cores from two areas: 1) Falkland Island coastal waters where eroded peat has accumulated on the sea-bed, and 2) A newly created wetland where estuarine sediments have overlain agricultural soils. We are asking you to analyse these sediments for their carbon and stable isotope ( $^{13}\text{C}$ ) content which will help us to understand the origin of this material and its likely fate in the marine/estuarine environment. You will be trained in laboratory techniques and procedures which will involve preparing the sediments for analysis and the use and calibration of laboratory instrumentation (stable isotope mass spectrometer and CN elemental analyser) to measure carbon and  $^{13}\text{C}$ . Whilst this project will be largely based in the laboratory, you will engage in our research team activities which will involve the collection of further samples from estuarine and coastal waters in order that you can fully appreciate the context of the analyses that you will be making.

**Candidate requirements:** You will be working at undergraduate level with a good understanding of environmental science, this project will be best suited to somebody who has a background in chemistry with an appreciation of laboratory instrumentation.

### **Background reading:**

[Bulk organic  \$\delta^{13}\text{C}\$  and C/N as indicators for sediment sources in the Pearl River delta and estuary, southern China - ScienceDirect](#)

[Estuarine Sediment - an overview | ScienceDirect Topics](#)

### **Approximate Work Schedule in weeks (desk based/lab/report writing):**

Week 1: Laboratory & Health and Safety induction and familiarisation

Week 2-6: Laboratory sample preparation and analysis. Sample collection in field.

Week 7-8: Data analysis, report writing, poster presentation.